

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1 **Claim 1 (Cancelled)**

1 **Claim 6 (Currently amended):** A magnetic field
2 sensor characterized by comprising:

3 a magnetic field element which outputs a signal
4 in accordance with an applied magnetic field strength;

5 an amplifier which amplifies the output signal of
6 this magnetic field element and outputs a voltage signal
7 across a pair of output terminals;

8 a condenser of which both ends are connected to
9 the pair of ~~the~~ output terminals of said amplifier;

10 a switch ~~part~~ which is inserted and makes a
11 connection between one of said output terminals in the pair
12 and one terminal of said condenser and which is closed by
13 a first period of a signal given from an outside of said
14 switch ~~part~~ and is opened by a second period of a signal
15 given from the outside of said switch ~~part~~; and

16 a pair of output terminals which outputs the
17 voltage across the ~~voltages of both~~ ends of said switch-
18 respectively;

19 wherein the polarities of the voltage signals for
20 the pair of ~~the~~ output terminals of said amplifier at the
21 first period of said signal and at the second period of
22 said signal are mutually opposite polarities.

1 **Claims 7-10 (Canceled)**

1 **Claim 11 (Previously presented):** A magnetic field
2 sensor according to Claim 6, characterized in that the
3 magnetic field element is a Hall element.

1 **Claim 12 (Currently amended):** A magnetic field
2 sensor characterized by comprising:

3 a magnetic field element which outputs a signal
4 in accordance with an applied magnetic field strength;

5 an amplifier which amplifies a signal from this
6 magnetic field element, which polarities in a first signal
7 period and in a second signal period are mutually opposite,
8 and outputs a voltage signal across a pair of output
9 terminals;

10 a condenser of which both ends are connected to
11 the pair of ~~the~~ output terminals of said amplifier;

12 a switch ~~part~~ which is inserted and makes a
13 connection between one of said output terminals in the pair
14 and one terminal of said condenser, and which is closed at

15 the first signal period and is opened at the second signal
16 period; and
17 a pair of output terminals which outputs the
18 voltage across the ~~voltages of both~~ ends of said switch,
19 ~~respectively~~.

1 **Claim 13 (Previously presented):** A magnetic field
2 sensor according to Claim 12, characterized in that the
3 magnetic field element is a Hall element.

1 **Claim 14 (Previously presented):** A magnetic field
2 sensor according to Claim 12, characterized by further
3 comprising a switch circuit which switches the voltage
4 outputted from said magnetic field element to have opposite
5 polarities in a first signal period and a second signal
6 period and which outputs the switched voltage.

1 **Claim 15 (Previously presented):** A method for
2 detecting magnetic field comprising the steps of:
3 (a) outputting a signal according to an applied
4 magnetic field strength through a magnetic field element;
5 (b) amplifying a signal of a first signal period
6 of a polarity from this magnetic field element for
7 outputting a voltage signal across a pair of output
8 terminals of an amplifier and inputting a signal of the

9 pair of output terminals of the amplifier to both ends of
10 a condenser; and

11 (c) amplifying a signal of a second signal period
12 of the other polarity from this magnetic field element for
13 outputting a voltage signal across a pair of output
14 terminals of the amplifier and inputting a signal of one
15 output terminal in the pair to one end of the condenser,
16 and outputting a signal across the other end of the
17 condenser and the other output terminal of the amplifier to
18 a second pair of output terminals, respectively.

1 **Claim 16 (Previously presented):** A method for
2 detecting magnetic field according to Claim 15,
3 characterized in that the magnetic field element outputs a
4 signal in accordance with a Hall effect.

1 **Claim 17 (Previously presented):** A method for
2 detecting magnetic field according to Claim 15,
3 characterized by further comprising a step of:

4 (d) halting a power source supply to the magnetic
5 field sensor in every constant period.